

## CLAIMS

1. An interference signal canceling apparatus comprising:

a calculator for calculating likelihood of each  
5 symbol included in a received signal;

a setter for setting likelihood for rank  
decision from the calculated likelihood on a  
predetermined block-by-block basis;

a decider for deciding a rank with respect to  
10 each block based on the set likelihood;

a spreader for spreading a symbol having the  
highest rank on the block-by-block basis; and

a remover for removing the spread symbol from  
the received signal on the block-by-block basis.  
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2. The interference signal canceling apparatus  
according to claim 1, wherein

said setter sets an average value of likelihood  
of symbols included in the predetermined block as  
20 likelihood for rank decision, and

said decider decides the rank with respect to  
each block based on the likelihood averaged on the  
block-by-block basis.

25 3. The interference signal canceling apparatus  
according to claim 1, wherein

said setter sets any one of likelihood of  
symbols included in the predetermined block as

likelihood for rank decision, and

said decider decides the rank with respect to each block based on any one of the likelihood.

- 5 4. The interference signal canceling apparatus according to claim 1, wherein

when signals having a plurality of symbol rates are multiplexed into the received signal,

- 10 said setter sets likelihood for rank decision on the block-by-block basis using a length of a symbol having the lowest symbol rate of the plurality of symbol rates as a block length.

- 15 5. A mobile station apparatus having an interference signal canceling apparatus, said interference signal canceling apparatus comprising:

a calculator for calculating likelihood of each symbol included in a received signal;

- 20 a setter for setting likelihood for rank decision from the calculated likelihood on a predetermined block-by-block basis;

a decider for deciding a rank with respect to each block based on the set likelihood;

- 25 a spreader for spreading a symbol having the highest rank on the block-by-block basis; and

a remover for removing the spread symbol from the received signal on the block-by-block basis.

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6. A base station apparatus having an interference signal canceling apparatus, said interference signal canceling apparatus comprising:

5 a calculator for calculating likelihood of each symbol included in a received signal;

a setter for setting likelihood for rank decision from the calculated likelihood on a predetermined block-by-block basis;

10 a decider for deciding a rank with respect to each block based on the set likelihood;

a spreader for spreading a symbol having the highest rank on the block-by-block basis; and

a remover for removing the spread symbol from the received signal on the block-by-block basis.

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7. An interference signal canceling method comprising the steps of:

calculating likelihood of each symbol included in a received signal;

20 setting likelihood for rank decision from the calculated likelihood on a predetermined block-by-block basis;

deciding a rank with respect to each block based on the set likelihood;

25 spreading a symbol having the highest rank on the block-by-block basis; and

removing the spread symbol from the received signal on the block-by-block basis.

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